Séminares EDP de l'ERC ReaDi
Equations de réaction-diffusion, propogation et modélisation
Henri Berestycki

Les membres du projet ERC ReaDi sont heureux d'annoncer le lancement de la deuxième saison du cycle de séminaires autour des Equations aux Dérivées Partielles qui se tiendront à l'Ecole des Hautes Etudes en Sciences Sociales à commencer du 26 Janvier. Retrouvez toutes les informations sur le séminaire : http://readi-project.weebly.com/pde-seminar.html (Attention : certaines dates ont été modifiées).

Deuxième séance : **mercredi 10 février à 11h00**
Salle 466, EHESS, 190-198 avenue de France, 75013 - Paris

Grégory Faye, *Institut de Mathématiques de Toulouse, Université Paul Sabatier*

Title: **Linear spreading speeds from nonlinear resonant interactions**

Abstract: We study spreading speeds resulting from mode interactions in spatially extended systems. Here, we have in mind those systems possessing an homogenous steady state that is unstable with respect to both homogeneous perturbations and perturbations near a fixed nonzero wavelength. The dynamics of these systems is governed by a competition between two unstable modes. For spatially localized perturbations, this competition manifests itself in the formation of traveling fronts that propagate into the unstable state. Our goal is then to determine the speed of these fronts. Our analysis shows that the nonlinear (quadratic) interaction of the two unstable modes can create an anomalous faster spreading speed and we derive a general criterion for the computation of such speeds. Our criterion is applied to several cases: uni-directional and bi-directional coupled amplitude equations, systems of equations where a Swift-Hohenberg equation is coupled to a reaction-diffusion equation, and a scalar nonlocal neural field equation.

This is joint work with Matt Holzer and Arnd Scheel.

Organisateurs : Andrea Tellini et Alessandro Zilio